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THE INTERNATIONAL SCIENTIFIC CATALOGUE, AND THE DECIMAL SYSTEM OF CLASSIFICATION.

The most notable bibliographical event of the year was the holding of an International Conference at London in July last for the purpose of considering the preparation and publication of a complete international catalogue of scientific literature. The germ of this idea originated forty years ago with a proposition made at the British Association by a distinguished American scientist, Professor Henry, and was partly realised by the "Catalogue of Scientific Papers" issued since 1867 by the Royal Society and designed to embrace all the purely scientific literature published since 1800, arranged according to authors' names. The proportions which this catalogue soon assumed, and its unavoidable bibliographical deficiencies, subsequently determined the Royal Society to undertake the preparation of a *complete systematic catalogue of all the world's publications in pure science*, arranged not only according to authors but also according to subject-matter. It was quickly seen, however, that the enormous magnitude of the plan far transcended the powers of a single organisation, and accordingly a circular was issued to all the great learned bodies and civilised governments of the world, inviting their co-operation in the consideration and execution of the scheme. For the details of the Conference we must refer our readers to the excellent report by Carl Junker in the *Centralblatt für Bibliothekswesen*, Leipsic, Vol. XIII., page 505, to the *London Academy* for August 1st, to the *Library Journal*, New York, for August and November, 1896, and also to the contemporaneous files of *Science* and *Nature*. We have only to remark that it was decided the Catalogue should be restricted to "pure" science, that its official language should be English, that it should be issued both by cards and periodical volumes, and that all the difficult questions involved in its preparation should be left to a special international committee, in charge of a central bureau at London.

The most important of all these questions, and the one that provoked the most discussion, concerned the system of classification to be adopted. The decimal system of Melvil Dewey, now director of the New York State Library, was suggested with modifications. Dewey's system, which has been in practical use for over twenty years, is so well known, so widely adopted, and recently been the subject of so much controversy, that little explanation of it is necessary. It is in use in many of the middle-sized and in most of the smaller libraries of this country, and was recently (1895) enthusiastically adopted by the International Institute of Bibliography at Brussels, Belgium, which has now its permanent working bureau. For a simple and brief account we could recommend no better source of information than Publication No. 5 of the Belgium Office (Hotel Ravenstein, Brussels), seeing that Dewey's own book is rather bulky and too detailed for the general reader.

The principle of the system is that of dividing all knowledge into ten main *bibliographical* branches denoted by the numerical characters from 0 to 9, of subdividing these again into ten more and so on *ad infinitum*, so that each branch of knowledge and each mode of knowledge has its definite and unvarying characteristic (just as a logarithm has), which can be interpreted at once by its place in the ordinal series and by the help of a comparatively simple general index. Thus 0 denotes General Works, 1 Philosophy, 2 Religion, 3 Sociology, 4 Philology, 5 Pure Science, 6 Applied Science, etc. By another subdivision, say of 5, we have respectively 0, 1, 2, 3, 4, etc. for General Science, Mathematics, Astronomy, Physics, Chemistry, etc., and by another subdivision, 530 means General Physics, 531 Mechanics, 532 Hydrostatics, etc., 535 Optics. There are further a few special marks for geographical and historical subdivisions, consisting of parentheses, colons, etc., so that 535.09(44.04), for example, is easily read as "the history of optics in France during the Revolution." The whole practical mechanism of the system, which admits of specialisation by subdivision in the enormous ratio of the powers of 10, is simply an alphabetical index and tables of general and special headings, which are repetitionary in principle. Its power and uses are not restricted to bibliography, but may be advantageously extended to *Indices Rerum*, etc.

It is evident that the system *apparently* involves a *classification of the sciences*, and this seems to have been the main ground of objection to the scheme at the London Conference, which curiously enough came principally from librarians, who have least to bother with questions of philosophy. It should not, however, be viewed as such, but should be regarded merely as what it is, a *practical scheme for arranging and indexing books*. Consequently, it can never, as has been claimed, hamper the advancement of science; for however false and illogical Dewey's classification of knowledge may be, the arrangement of books in a catalogue or on a library's shelves can at most only give difficulties to the arranging librarian or to the seeker—it can in no essential manner affect the progress of science. A perfect classification of the sciences we shall never have, and there is infinitely less probability that we shall ever have a perfect bibliographical system, for knowledge is so interrelated, its gradations and shadings are so subtle, and the caprices of authors are so great, that it is safe to say bibliographers will always be presented with substantially the same difficulties as they are to-day. The sole question is that of practical flexibility, ease and precision of consultation. These qualities the Dewey system seems to combine in a more eminent degree than any existing system, and in view of the momentous significance and inestimable practical value of the proposed International Catalogue, it is well that its merits should be strongly insisted upon and its defects thoroughly examined before rejection or adoption. At any rate we should bear in mind here that we are not concerned with a rigid philosophical scheme for classifying the sciences, but with a practical system of bibliography having no bearing whatever on the development of research.

In the first place, then, although we should not claim for the Decimal Classifi-

cation the merits of an absolute Real Character, yet there is no denying that it is essentially ideological in structure, and hence international. Secondly, it furnishes not only a bibliographical nomenclature but also a bibliographical notation which can be mechanically handled. Lastly, its power of expansion and meeting the growing needs of specialisation is unlimited, while the resultant ramifications of the system are symmetrical and entail little additional mnemonic burdens.

As to the defects they seem to pertain largely to matters of library economy, as the spatial separation of subjects nearly related (e. g., Philology and Literature), the decision of the proper category to which a book belongs, say Money or Finance, Applied Electricity and Mechanical Engineering, (a very elusive matter, generally inherent in the book and not in the system,) the treatment of subjects wherein the alphabetical system seems intrinsically indispensable, as Biography, etc. For the recital of these defects we may refer the reader to an impartial paper by W. L. R. Gifford in the *Library Journal* for November, 1896, to a letter by A. G. S. Josephson in *Science*, September 4, 1896, and to an article published last summer by M. L. Polain in the *Revue des Bibliothèques*. In its favor may be read the laudatory articles of C. Richert in the *Revue Scientifique* for April 11th and July 11th, 1896, the paper of W. E. Hoyle in *Natural Science* for July, 1896, and that of Marcel Baudouin in the *Revue Scientifique* for May 30, 1896, as also to the publications generally of the Belgian International Office.

As might be expected, the opponents of Dewey's system are strongest in the United States. And the opposition is mainly from the librarians of our large libraries, who have greater difficulties to compose and in many instances have systems of their own. Although claimed to be in use in one thousand libraries in the United States, it is said these libraries are small and not of high standing. The opposition of the great librarians should certainly be weighed by the Catalogue Committee, *in all its phases*. Furthermore, we have the authority of the above-mentioned writer in *Science* that in Amherst College and Columbia University where the system was first used, "it has all been made over again."

Be that as it may, the Decimal System certainly contains the germ of a universal bibliographical notation and it is extremely probable that in one form or another it will be adopted for the new International Catalogue. Being restricted to one main division, that of Pure Science, it will avoid some of the difficulties that have perplexed librarians but bring additional others in its train. In itself the question is of considerable importance, reaching far beyond that of mere bibliographical interest, and deserves the serious consideration of all scientific workers.

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